THE VETERINARY RECORD

A Weekly Journal for the Profession.

Edited by William Hunting, F.R.C.V.S.

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Our Friends and our Enemies.

The Duke of Cambridge presided at the annual meeting of the Governors of the Royal Veterinary College on July 21st.

His Royal Highness said—"The deep interest he had always taken in everything which tended to strengthen and improve the status of the veterinary profession had in no way diminished. He hoped that everything that could be done to raise the position of those who joined their ranks would be carried out." If these words had been used by a visitor in an after-dinner speech one might have read them with a smile of satisfaction and a feeling of pleasure at the compliment. They are the words of one who knows the profession thoroughly, who has taken an active part in the work of our oldest teaching school, and who is acquainted with the efforts we have made to gradually raise our profession to a standard which would enable us to claim recognition as scientists and gentlemen. We admit no candidate to our examinations until he has passed an educational test as high as that demanded from medical students. We give our diploma to no man until he has passed four examinations as searching as those applied to graduates in medicine. We have done all we could to render our profession useful and valuable to the State and the stock-owner, and we value highly the well-informed opinion of H.R.H. the Duke of Cambridge. Probably if others in authority knew as much as H.R.H. we should have less difficulty in obtaining the recognition we claim. In private life the success of our best practitioners is evidence of the value set on veterinary science by men whose interests lead them to seek the best advice and guidance. Local authorities all over the kingdom have awakened to the value of veterinary knowledge and now make appointments which secure that knowledge. Only the State fails to give us the recognition accorded by local and private bodies. The Board of Agriculture in a half-hearted manner uses veterinary talent, but always with a suggestion that it is conferring a favour or conforming to a conventional usage. The Board never seems to appreciate the fact that nearly all its work and all its progress is due to veterinary knowledge. The War Office behaves even worse. It permits the service to be undermanned, and declines to treat us as scientists and gentlemen. Like all other callings ours includes many poor men who must work for a living. To such the possibilities of a haven of refuge is offered by the Army Veterinary Department although they know well that compared with other experts required by the Army they are the worst paid and least respected. The under-manned condition of the Army Veterinary Department results solely from the want of attraction presented by the service. Poor pay, poorer pensions, and above all the deliberate attempt to ear-mark the veterinary as an inferior officer are the causes which prevent our best men from joining the service.

The Duke of Cambridge knows the veterinarian and appreciates him. The heads of the War Office do not appreciate, and the reason seems to be that they do not possess the knowledge of the Duke. Lord Stanley and Mr. Brodrick are the men in power who stop the way of the veterinarian. The former it is said bases his objection to grant our demands upon some snobbish notions of social standing. He seems to imagine that the fact of being a veterinary surgeon is evidence of not being a gentleman. Such prejudice is incapable of rational enlightenment.

Mr. Brodrick is, it is said, in even deeper ignorance, and if rumour be true has stated his opinion that if sufficient men holding a veterinary diploma cannot be obtained on existing terms to fill the Department, the Government will appoint men without diplomas.

Of course we do not believe that even the most powerful clique of aristocrats dare take such a step whilst representative government remains in this country. The very idea of such a retrograde move could only occur to a man utterly ignorant of the value of veterinary science. It is difficult to understand, after the lessons of the recent war, how any man in office could hold such a view. The losses of horses and the shocking inefficiency which resulted from the breakdown of the Veterinary Department in South Africa could hardly suggest to even the smallest intelligence that the department was useless.

To those who know, it suggests that a better department is necessary, and the Committee which enquired and reported we presume made that point clear. To fix a position and to refuse any alteration cannot possibly force a progressive profession to accept it. To attempt to maintain the position by filling vacancies with incompetent men will certainly be followed by a catastrophe which will open the eyes of the public—but only after doing irreparable injustice to our profession.

What appears to be the thin-edge-of-the-wedge is suggested by a notice in *The Gazette*—"Sergeant-Major Fenton to be Quartermaster in the Army with the hon. rank of Lieutenant for service in the Army Veterinary Department." Probably this only means the appointment of a storekeeper, but here is a man with no veterinary qualification appointed a Lieutenant in the Army Veterinary Department.

We are grateful to H.R.H. the Duke of Cambridge, but our feelings towards Mr. Brodrick and Lord Stanley are—different. Political Associations now advise—register; good advice, but mind how you vote!

"LYMM FLASH" AND THE X RAYS.

(A Suggestion).

By A. S. Hodgkins, Care Alfred Hodgkins, M.R.C.V.S., Hanley.

Having read with interest your leader on the above case and the certificates signed by the ten veterinary surgeons, in last week's *Record*, I notice one of the inspectors makes a sporting offer, along with other examiners, to purchase the filly "Lymm Flash" and have her slaughtered, and a dissection made of the foot to prove, or otherwise, that she has a sidebone. I think that without going so far as slaughtering the filly the truth might otherwise be obtained, namely by having a X ray photograph taken of the foot. No doubt the filly is a valuable one, and would be useful for work even if proved she has a sidebone.

I do not see any difficulty in having the X Rays applied, as I have several times taken X Rays photographs of limbs of various horses, to satisfy myself that the Rays are applicable in the veterinary profession, and which would no doubt go to prove whether the filly has a sidebone or not. I enclose you, Mr. Editor, a radiograph taken of a pony's fore foot which shows quite distinctly the formation of ringbone. Of course the radiograph should be taken on a film.

CEREBRAL HYPERÆMIA.

A pony, 6 years, had rested for a week owing to the trap being under repairs; he was normally very quiet and affectionate, so the owner was astonished to see him one morning gymnastically climbing up the 10 ft. partition of his box and breakfasting on huge hunks of his own breast with evident gusto, to such an extent that he would have been permanently damaged had he recovered. His acrobatic tricks prevented him being caught or an easy aim obtained, but in a short time he was successfully shot.

There was history or rabies, and there appeared to be no exciting cause for this sudden outbreak of madness.

The Doctor Sahib.

ABSTRACTS FROM FOREIGN JOURNALS.

Fracture of the Cervical Vertebra in the Horse.—By Prof. L. Hoffman, Stuttgart.

According to accounts in literature and after varied experiences I have classified such as follows:

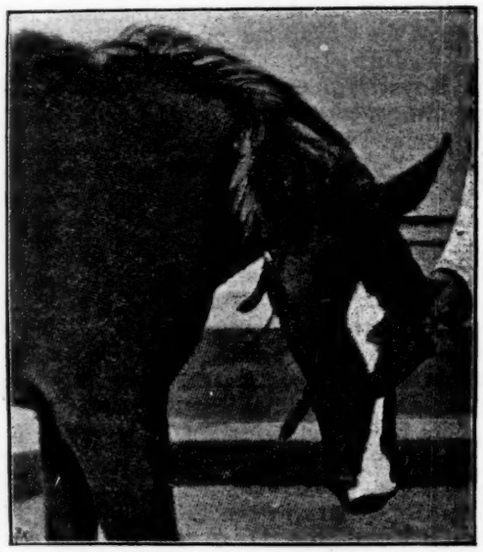
1. Stretching of the muscles of the neck, twist and sprain of the neck with tearing and laceration of the muscles.
2. Incomplete dislocation sub-luxation.
3. Fracture of the vertebra.

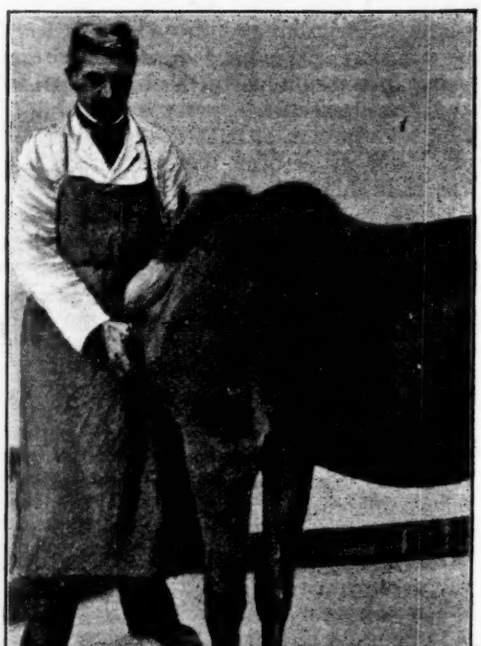
Diagnosis is only anatomical; clinical confirmation without Röntgen rays must be very difficult.

Prognosis as regards No. 1 is favourable, No. 2 cautious to unfavourable, No. 3 unfavourable to bad.

A 10 months old foal was brought into the surgical clinique with the following history:—

Three weeks previously the foal was found lying in the stable with his head bent to the right under his body, the right hind foot was caught at the fetlock joint in the halter chain and rubbed raw; things looked as if the little animal had made very severe struggles to free himself from constraint. After loosing the chain the neck remained bent and the foal could not stand the first days, but took food, seemed tolerably lively, and had a good gait. The veterinary surgeon called in could hear dull crepitations on stretching the neck.





Status praesens is best shown in the accompanying illustrations. Endeavours to stretch the head and neck were quite unsuccessful. Crepitation was not noticed. The fourth cervical vertebra was the most prominently protruded to the left. The foal took his food regularly, but lay on the ground very much so that the head was bent in the shoulder very much and never held out straight as previously. The most agreeable gait in progression was in a circle. Nervous disturbance was not evident.

Diagnosis.—Luxation between the third and fourth cervical vertebræ and fracture, fracture of the anterior oblique process of one vertebra or the posterior process of another. This conclusion was come to because the absolute stiffness of the neck seemed due to mechanical hindrance and because the nervous symptoms seen in fracture of the body of the vertebra were absent.

Prognosis.—Cautious.

Therapy.—Reclining on the left side, narcosis, attempts at mechanical removal of the broken right oblique processes. During the operation and under the deepest narcosis the neck could just be straightened. In the depths of the wound a moveable piece of bone could be felt, but it was not possible to remove it. Chisel and hammer were not used on account of the proximity of the spinal marrow. After the operation the neck could not be stretched any more than before. Putting on an effective bandage was impossible. The wound made was treated as an open one and did not heal *per primam*, and the foal died 10 days after operation. Section showed that as conjectured the right posterior oblique process of the third cervical vertebra was broken and a piece as large as one's forefinger lay as a sequestrum in the depth of the wound, but at the vertebral body of the fourth cervical vertebra the plate of bone in the epiphiseal line was broken. Cause of death was operative interference and consequent infection of the wound, and enclosed pus in the vertebral canal at the line of fissure.

The case is of special interest because of a double fracture of the body of the fourth cervical vertebra and of the third cervical vertebra at the posterior oblique process—because nervous disturbance was absent and the stiffness of the neck was not due to mechanical hindrances, but resulted entirely from muscular contraction. It is doubtful whether without operative interference and wound infection death might not have been avoided and a complete cure made.

G. M.

THE CENTRAL VETERINARY MEDICAL SOCIETY.

A meeting was held at 10 Red Lion Square, W.C., on Thursday, July 2nd, 1903, Mr. W. Perryman, president, in the chair. There were present Messrs. A. L. Butters, S. H. Slocock, J. B. A. Hare, A. R. Routledge, S. L. Stephens, G. H. Broad, P. S. Howard, T. J. Wooff, W. R. Clarke, L. Savournin, H. Thompson, E. E. Martin, J. A. Nunn, P. W. D. Smith, A. Rogerson, R. Porch, A. E. Bayley, H. King, E. Lionel Stroud, hon. sec., and two visitors.

The minutes of the previous meeting were taken as read.

The SECRETARY announced that he had received letters from Professor Woodruff and Colonel Glover, and a telegram from Mr. Tutt regretting their inability to be present. A letter had also been received from Mr. Hill, secretary of the Royal College, acknowledging receipt of a copy of a resolution passed at the Society's last meeting, and promising to bring it before the Council. Letters on the same subject had also arrived from Mr. Bowes, Yorkshire Veterinary Medical Society, and from Mr. Percy J. Simpson, of the Royal Counties Veterinary Medical Society. The usual acknowledgment had been received from the War Office, promising that the matter should receive attention.

A circular letter had been received from the Lincolnshire Veterinary Medical Society enclosing resolution, and asking for support in the matter—

"RESOLUTION. That this meeting of the Lincolnshire Veterinary Medical Association, respectfully suggest to the Board of Agriculture, that the employment of local veterinary inspectors to determine the existence of swine fever or other scheduled diseases in a neighbouring inspector's district, is likely to decrease the local practitioners prestige in his own district, and is calculated also to do him harm."

Mr. WOOFF said he knew but very little about swine fever, but he thought members of the Society might well express their sympathy with their brethren in the country, especially if it would be the means of benefiting those country practitioners, because the Society was a powerful body.

Mr. STEPHENS said he had been for some time an inspector under the Contagious Diseases (Animals) Act in Cornwall, and he had found it operate awkwardly in regard to his fellow practitioners, because he had been sent into their districts to report on cases, sometimes having to travel long distances. Frequently the local practitioner's opinion had been pitted against his own and the Board had accepted his (Mr. Stephen's). The present working was awkward both for the inspector and for the local practitioner. He had pleasure in proposing that the Society agree to the suggestion of the Lincolnshire Veterinary Medical Society.

The SECRETARY pointed out, after reading the letter to the meeting again, that the Lincolnshire Society desired the co-operation of the London Society, and were not asking for a resolution to be sent to the Board of Agriculture.

Mr. WOOFF said he believed London practitioners had for some time advocated that inspection for glanders under the County Council should be carried out by men who would do nothing else. The London practitioner probably did not care about swine fever, but he was jealous about the position of his profession. In one quarter it was urged that inspectors should not have private practice, whereas in the present case it seemed to be desired to appoint every practitioner an inspector.

Mr. SAVOURNIN thought the resolution was very peculiarly worded, and that it might lead to grave misunderstanding. The Lincolnshire Medical Society objected to the employment of a local veterinary inspector in another inspector's district. Surely they meant in a neighbouring practitioner's district. Also, they only made a complaint not a suggestion. There was no statement as to whether they desired to have a third party appointed to inspect in the two or three districts, as the case might be, or whether each inspector should inspect in his own district. In the case of such a vaguely worded resolution perhaps it would be well to merely express sympathy with the somewhat indefinite complaint.

Mr. SLOCOCK pointed out that the resolution was not so complicated as the last speaker indicated, because in

the county of Middlesex there were seven inspectors who had all been employed from time to time by the Board of Agriculture and were sent indiscriminately into one another's districts. An inspector went into the county and made his report and declaration on the proper form. Then a second veterinary surgeon went. It should be the same one again, but if the Board seemed to think one practitioner was getting a little too self-confident he was allowed to stay at home and others were sent. The first time that happened to him, when the papers were sent he thought they belonged to his neighbour, the late Mr. Leggett, and as he was going that way he put the papers into his pocket and gave them to Mr. Leggett, saying they had evidently been sent to him (Mr. Slocock) by mistake, and asking him to attend to the matter, which he did. He (Mr. Slocock) received a severe reprimand from the Board of Agriculture in two days time telling him that in future if he did not care to carry out their instructions another man would be appointed. The letter read as if every practitioner should be an inspector, but that was impossible. He thought the real meaning was an objection to the indiscriminate interchange of districts. The Board of Agriculture would not take any notice of a resolution from the Society on the subject.

Mr. SAVOURNIN said that in such an event he would withdraw what he had said.

Mr. WOOFF thought the letter might be acknowledged, with the assurance that the Society would support the Lincolnshire Society in anything which would be for the benefit of the local practitioner.

Mr. SAVOURNIN seconded, and it was carried.

MORBID SPECIMENS.

Colonel NUNN showed a specimen of bones of the knee of a horse sent by Vet.-Captain Knight, who was in charge of the station. It was a remount, and was being schooled and jumped by a rough rider over a bar and he refused and the man rode her at it, and she jumped clumsily and hit the bar a severe blow, coming down on the other side. It was then found that she could not move. Captain Knight saw her a few minutes afterwards when the whole of the small bones of the knee seemed to be driven backwards and outwards on side view. In front she seemed somewhat bow-legged. The case being hopeless the animal was destroyed. Post-mortem examination showed that the ligaments had been severely ruptured. The specimen had been sent to him (Colonel Nunn) in its present boiled state so he could not say what condition the tissues were in. He showed portions of bone which had been splintered off.

Mr. WOOFF showed an œsophagus of a horse which had become impacted and was very much above normal size. Attention was called to the horse and it was found to have a deformed neck, the trachea passing on its upper third to the side of the œsophagus. On post-mortem examination the middle third of the trachea was flattened, all the rings being fractured. The history gleaned was that the horse had a big neck in the morning, but after working it became only about half the size. The horse had always been a slow feeder. Being scared by the remarks he had heard about the probang he did not use it, but the suggestion thrown out at a previous meeting was adopted, namely, injecting fluid into the œsophagus itself. The large mass shown was quite solid before that procedure was adopted. He had not cut into it anywhere. He would like to hear if any member had seen or heard of a similar case and what treatment they would be inclined to adopt. It was clear that hand rubbing would be useless in such a case. He had a photograph taken before removal from the chest cavity and he would be glad to forward a copy to any who desired it. There was no previous history of injury. The owner had had the horse about four months.

Mr. PORCH asked what the fluid injected was; was it an oleaginous substance?

Mr. WOOFF replied that it was a 5 per cent. carbolic acid solution. Oil had been given in small quantities before he saw the animal.

Captain MARTIN asked what symptoms the horse was showing at the time Mr. Wooff's treatment commenced.

Mr. WOOFF replied that it seemed to be choking; it stuck its head out and frothed at the mouth. The top of the mane looked straight, and there seemed to be a direct line almost from the point of the sternum to the angle of the jaw. He wished he had taken a photograph of the horse during life.

Col. NUNN said the condition was not specifically described in English text books, but in France it was known as jarbot. He believed that treatment was merely the giving of demulcent fluids by the mouth.

Mr. PORCH narrated a case of hemlock poisoning in a horse. The horse had been at plough with a unicorn team, and periodically the lead horse was turned loose, and after an hour put to work again for two hours. Peculiar symptoms then developed and he was called in, but for some time could not make out what it was. He enquired into the history, and then it occurred to him that possibly the horse had eaten hemlock. He went to the field and found a hedge where the horse had topped the hemlock for a distance of 100 yards. There seemed a loss of control of the muscular system, the horse propping himself against a post and against his manger. The eyelids were drooping, the pulse slow, the extremities cold, and the animal seemed very apathetic. He treated it with alcoholic stimulant and strychnine, the legs were hand-rubbed, and began to get warm, then he was clothed and bandaged. He got cold again in half-an-hour and then the rubbing was renewed. In two hours time the horse began to feed. He was weak for three or four days, and when walked out did not seem to have full control of his muscles. He wished to hear if any other member had come across a similar case, and if so what treatment was adopted.

Colonel NUNN said that many years ago he saw a case but at the time he had no idea what it was. The symptoms were those which had been described by Mr. Porch. Musselman and Herbren, of Brussels, had described the condition in their work on "Veterinary Toxicology," and showed that such poisoning was met with in the low-lying pastures of Holland. The treatment mentioned was strong black coffee.

Mr. ROGERSON said the case brought by Mr. Wooff was especially interesting as it followed on a discussion on impaction of the œsophagus. He had at the present time a horse in the company he was connected with with impaction of the œsophagus, or dilatation of it, and he had had it three or four years. It was half way down the neck somewhat circumscribed and 3½ inches across. It filled as the horse fed and subsided gradually afterwards. The condition did not appear to have interfered with his working. What precaution should be taken with regard to feeding that horse? Was damp food preferable to dry food? He would be glad to hear from Mr. Wooff how long the horse was in that condition, and what brought about death.

Mr. WOOFF, in reply, said the condition had existed four months to his knowledge. Instructions were issued to feed the horse a little at a time with damp food. London carmen as a rule bundled the food all in at once, and he believed his instructions were not carried out. Once or twice a week the horse had bran mash. It was the custom in his company to bait the horses four times a day, and that particular carman was asked to feed the horse at eight periods, giving a little at a time. He believed death was due to exhaustion. The horse received no food into the stomach, and the ingestion of water caused coughing and regurgitation through the nose and

mouth. He believed that no food was assimilated during the last nine days of life. Moreover there was not more than half a pailful of refuse in the whole bowel. One lung was encysted, but he thought that was not important. It was in a stud of 300 horses.

Nomination and Election.

Mr. R. Thomas, M.R.C.V.S., of Brecon, South Wales, was nominated as a Fellow of the Society.

Mr. R. A. Phelp, F.R.C.V.S., 17 Church Lane, Whitechapel, was unanimously elected a Fellow of the Society.

"THE USES OF IODINE IN VETERINARY PRACTICE."

Resumed Discussion on Capt. Martin's Paper.

Mr. Butters said when he moved the adjournment of the debate on this paper at the last meeting he thought he would be able to look back upon his notes and supplement the paper from them. But Captain Martin had no need to apologise in his paper for bringing the subject forward. Questions connected with materia medica were so rarely discussed that such a subject was quite refreshing. The last one was upon Cannabis Indica. Iodine was largely used by almost every member of the profession, either in its crude form or in some of its combination. The fact that it had stood the test of years proved its merit. Many much lauded drugs went out of use in a year or two when a sufficient test had been applied. He had found iodine practically a specific in Diabetes insipidus, and it was very useful in early cases of influenza and lung affections where there was much thirst. Also in hydrothorax, before and after aspiration, he had found half-drachm doses of iodine of great service, especially if mixed with equal portions of iodide of potassium, and made into a ball. The question of how iodine acted was a very large one, and its solution depended on the ideas one had as to the origin of the disease from which the animal was suffering. Previous to the discovery of the germ causation of disease our ideas were crude, and even now very little was known how some drugs acted. He wished to thank Captain Martin for his paper.

Colonel Thompson asked whether any member had injected tincture of iodine into bursal enlargements for their reduction. That was at one time a very common practice, and much success was claimed for it by some, but others thought it did more harm than good.

Mr. Butters, in further comment, said he had some experience 15 years ago, of injection of iodine in two cases of thorough-pin in a hunter. The animal was cast, and iodine was injected. When it got up the limbs became enormously swollen and very stiff. After about six weeks the swelling went down, and the horse was sent home with the bursal swelling very much reduced. But in another case which he treated the iodine was of no use at all.

Colonel Nunn said his experience of a number of years in India had supported Captain Martin's observations. He could confirm what Captain Martin said about scirrhous cord and thickened cord. In regard to one series of cases he could refresh Captain Martin's memory. The author referred to iodine as almost a specific for diabetes insipidus, but diabetes mellitus seemed to have slipped his memory. He was aware that some said the latter disease could not exist in a horse, but in warm climates it was not so uncommon as was generally supposed. He was at the Punjab Veterinary College for some years, and during one year eight cases were seen there in which the urine gave the sugar reaction. Some years ago he published a joint article on the subject in one of the veterinary journals. In true diabetes iodine was an absolute specific. He agreed with what had been said about iodine in cases of ringworm. With regard to the injection of iodine intravenously, the author said it was not absolutely necessary to sterilize the part, and that even if a few small bubbles were admitted with the fluid into the vein, very little harm resulted. It had been held up almost as a bogey that if any air got into the vein the result was fatal. He (Colonel Nunn) had never seen harm from such bubbles, even into the jugular vein. Moreover, once or twice in his life he had attempted to destroy animals by fixing a blow-pipe into the jugular vein and blowing air into it, but he had found the greatest difficulty in killing them.

The President said he had used iodine extensively in pneumonia, and frequently had injected 10 grs. a day intra-tracheally; he found marked improvement followed, and felt sure resolution of the lung was thereby much hastened. He had also had good results from its use in gangrene of the lung, where he thought it acted as an antiseptic and stimulated the lymphatics of the lung tissue. In cases of purpura he thought practitioners were often disappointed with results because they did not use large enough doses. He made a solution of ten grains to the ounce, and as much iodide of potassium as would dissolve in 2½ ozs. with water. The animal would be very likely to cough, but if allowed to stand a few minutes afterwards, most of the medicine was kept down. The only ill effects he had seen from it were a little swelling if some were dropped outside, and then the needle could not be inserted next day. But the ultimate effect was good.

Captain Martin, in reply, thanked the members for their kindness in discussing his paper. With regard to tracheal injection in pneumonia, it was very much the same sort of thing as injection into the jugular vein, but simpler and less risky. Last time he spoke from a number of cases on which he did the operation 18 months ago; but recently he had had many remounts sent to him from Aldershot with very bad catarrh, which in many cases developed into pneumonia. He had some very bad cases, and carried out intravenous injections with very favourable results and with no mortality. In one case the jugular vein was occluded, but he did not know why, for there was no swelling in the part, and the vein was patent for several days. Where the injection went into the surrounding tissues and not into the vein there was considerable irritation, and corresponding swelling, but he had not found such swellings go on to abscess formation. In the case where the jugular vein was occluded there was no swelling whatever. He thought the chief reason was that the solution he had been using was too strong. The dose of the iodine was about right. The only reason he started with that strong solution was that at the time he had no large syringe at hand, and he worked with a one-drachm syringe. With intravenous injection quicker results were obtained than by any other method, and it only required a little care. He thought the tracheal injection would be almost as good. In reply to Colonel Thompson's question, he had never tried injection of iodine into bursal cavities, but he understood some practitioners, such as Mr. Dean of New Zealand, had had a great deal of success with it.

Mr. Savournin proposed a hearty vote of thanks to the essayist and those gentlemen who had brought morbid specimens. This was seconded by Mr. Butters, and carried unanimously.

Mr. Rogerson proposed a ordial vote of thanks to the President for the very estimable way in which he had conducted the meetings of the Society during the session. He had maintained the dignity of the chair and the honour of the Society, and it was to be hoped that the Society would continue to flourish.

The vote was heartily carried.

The President briefly acknowledged the vote and the meeting terminated.

Royal College of Veterinary Surgeons.

EXAMINATIONS IN IRELAND.

At the recent examinations held in the Royal Veterinary College of Ireland, the following students passed in the undermentioned Classes:—

CLASS A.

Mr. J. Crowley	Mr. W. Prendergast *
H. Gibson †	T. Russell
R. Hodgens	R. Stirling
F. Markham	A. C. Taylor
P. J. O'Brien	

CLASS B.

Mr. J. T. Clinton	Mr. T. Flynn
E. Devine	

CLASS C.

Mr. A. Baker	Mr. R. J. O'Riordan
A. C. Duncan	G. W. Tyson *
J. Lynch *	E. A. P. B. C. White
R. G. Melville *	

Marked * Second class and † First class honours.

FINLAY KERR,
Sec. in Ireland to the Board of Examiners.

RHODESIAN REDWATER.

PROFESSOR KOCH'S REPORT.

OUTLINE OF JOURNEY.

I have the honour to submit herewith my first report embodying my observations and investigations with regard to the cattle disease existing in Rhodesia, in response to your telegraphic request on the 17th March.

Having received a letter from the British South Africa Company on December 24th, 1902, authorising me to proceed to Rhodesia, *via* the East Coast, I left Berlin with my two assistants, Dr. Neufeld and Dr. Kleine, Army Medical Department, on January 12th, 1903, and landed at Beira on February 18th. On the way I availed myself of the opportunity to make investigations and inquiries at the various ports at which the steamer called along the East African Coast, at Mombassa, Tanga, Zanzibar, Dar es-Salaam, Kilwa, Ibo, Mozambique, and although the stoppages were brief I was able to collect valuable material throwing much light on the subject of the Rhodesian cattle disease, to which I will refer later.

In Beira I was met by Mr. Gray, Chief Government Veterinary Surgeon at Rhodesia, and Col. Beal, Assistant Manager of the Beira and Mashonaland Railways, who kindly arranged everything to enable me to proceed without delay to Umtali.

Mr. Gray gave me every information about Beira, and about the first outbreak amongst the imported cattle from New South Wales at the end of 1900.

On the afternoon of the day on which we arrived we visited the farm of Mr. Martini, outside Beira, and inspected his cattle, which were of interest inasmuch as they had grazed alongside the Australian cattle and sometimes even mixed with them.

We then proceeded to Umtali, where we arrived on February 20th. Here we saw the first case of the disease in a calf, the survivor of a large herd, but we could carry on no further investigations here, as the disease had spent itself, and only a very few head of the cattle were left.

A similar state of affairs existed in Salisbury, where we also saw some cases, but as at Umtali the epidemic after having killed off nearly the whole stock of the township had temporarily abated.

This being the case, we therefore decided to proceed to Bulawayo, where the disease had broken out only some months previously, and where there is every likelihood that for some time to come suitable material for the study of the disease will be found.

The Hillside Camp, 1½ miles outside Bulawayo, which was erected two years ago for the accommodation of the Rhodesia Field Force, but which is now unoccupied, affords an excellent laboratory and for housing experimental animals, although some alterations are necessary to prepare stables to keep healthy animals without danger of infection, by no means an easy matter in such a highly infected neighbourhood. I expect, however, the work of carrying out these alterations will be so far advanced in the course of a few days, under the expert supervision of Mr. Gray, that experiments with healthy animals, with a view to conferring immunity, can be commenced by placing as many infected animals as possible under observation.

WORK NOW BEING CARRIED OUT.

Meanwhile we have lost no opportunity of studying the disease by observing its course in sick animals, by making post-mortems and by examining the various organs therefrom for the characteristic lesions produced by the specific parasites, and he have also studied the connection of the ticks with the disease, with a view to forming an opinion as to the causes of this epidemic.

Up to now we have had under our care 22 infected animals, 19 of these have died, and upon 18 we have made most careful post-mortems. Of those surviving two are very sick and will probably die of the disease, while one appears to have some chance of recovering.

These figures show that an extraordinary high mortality characterises this disease. In Umtali of 4,000 head of cattle, scarcely 200 survive, and of the New South Wales imported animals (about 1,000) none are now alive. The general opinion is that the percentage of mortality amongst infected animals is from 80 to 90—almost as high a death rate as that of rinderpest.

The symptoms of the disease and the post-mortem appearances in our cases correspond to those given in the most excellent report of Messrs. Gray and Robertson on Texas fever or redwater in Rhodesia, and therefore I do not think it necessary to enlarge on these at great length again.

NATURE OF THE DISEASE.

From the beginning it was noticed by all observers that the Rhodesian disease was very similar to that which attracted public attention first in North America, later also in Australia, South Africa, South America, and Europe, and characterised generally as Texas fever.

REASONS FOR CONCLUDING THAT THERE IS SUFFICIENT DIFFERENCE BETWEEN RHODESIAN FEVER AND ORDINARY REDWATER TO JUSTIFY THE FORMER DISEASE RECEIVING A SPECIAL NAME.

The occasional appearance of hæmoglobinuria (redwater) and the existence of pear-shaped parasites in the red blood corpuscles led to the conclusion that the Rhodesian disease was identical with Texas fever, or at least one closely allied thereto, although more virulent; but if one gives the Rhodesian disease a careful consideration, important differences appear, which I think are even more important than they have been considered to be by the majority of observers.

Regarding this, I wish to call attention to the following facts:

In Texas fever there appear in the red blood corpuscles and in its initial stage without exception, the large pear-shaped twin parasites so characteristic of this disorder,

and in the course of the disease a great number of red blood corpuscles perish, so that their normal number, which is six to seven millions in the cubic millimetre, will sink to two or three millions, and even less, and through the destruction of so many red blood corpuscles, much of their colouring matter is liberated, discolouring the blood serum, and when this is excreted by the kidneys it gives rise to the condition known as hæmoglobinuria or redwater. Besides this, through the loss of so large a number of red blood corpuscles, an important anæmia results, which is most characteristic of Texas fever, and upon this anæmia the subsequent symptoms and post-mortem appearances depend.

It is quite different with the Rhodesian fever. Here, too, we have found blood parasites as proved by the microscopic examination of the blood of every animal submitted to our scrutiny, but these are of different shape and considerably smaller than the pyrosoma of Texas fever.

In the early stages of the disease they are as a rule not very numerous, but their number increases from day to day, so that ultimately in each or in every other red blood corpuscle there are one or more small parasites. In the first days of sickness only rod-shaped or very small ring-shaped parasites are observed, but if the animals remain alive a little longer, a number of somewhat larger parasites make their appearance ; these are disc shaped or resemble a leaf in outline. Only in exceptional cases and after a prolonged period of illness do we find in addition to the smaller organisms some bigger pear-shaped parasites. Amongst our fatal cases here we have only observed one in which the number of parasites present in the general circulation remained low throughout the course of the disease (about 1 parasite to 6 blood corpuscles). In all the other cases the parasites were very abundant. Only in four cases were the pear-shaped parasites observed ; in two of these the disease lasted a comparatively long time (from 15 to 16 days) ; in the other two the duration of the disease could not be assured.

Another difference exists, and is that although the red blood corpuscles are numerically more abundantly inhabited by parasites than they are in Texas fever, there is not the same destruction of these and consequently not the same reduction in their number that there is in this disorder.

In a number of cases in which Mr. Gray undertook daily count of the number of blood corpuscles, it was found that in some cases no reduction whatever in their number could be observed. In other cases again, oscillations in the number of the blood corpuscles were observed in which the decrease did not go under 4,500,000 per cubic millimetre. Only in one instance did the number of blood corpuscles fall to 4,200,000 and in another 2,380,000. As a consequence of comparatively small destruction of blood corpuscles we only exceptionally observe hæmoglobinuria.

Amongst our cases only once was a characteristic hæmoglobinuria observed during life, and that was in the case of the animal in which the number of blood corpuscles was most diminished, while in a second case in making the post-mortem, a light reddish urine was found in which spectroscopic evidence of the presence of hæmoglobin was forthcoming. These were the only cases of hæmoglobinuria which we saw.

From the evidence before us, it would appear that in this disease comparatively few blood corpuscles perish ; therefore no remarkable anæmia such as characterises Texas fever is likely to set in.

Further, the Rhodesian fever possesses certain post-mortem phenomena which are absent in Texas fever, namely local lesions in certain organs which indicate that the parasites accumulate in these parts in enormous numbers, injuring the tissues and obstructing the circulation. To this cause may be ascribed the most characteristic lesions of this disease, the infarcts in the kidneys, lungs and liver, the swollen and hæmorrhagic condition of the different groups of lymphatic glands (the crural, tracheal, mesenteric, portal, bronchial and mediastinal glands) and the appearance of local œdemas, especially in the lungs from which the peculiarly frothy effusion occasionally observed results. That this is caused by the action of the parasites is proved on microscopic examination, as we find in all these different parts the organisms are unusually abundant, and there we have observed a peculiar form which up to now has not been described, a form which leads to the conclusion that here an increase of parasites takes place.

I am of opinion that these differences are sufficient proof that the Rhodesian fever, although allied to Texas fever, and belonging to the same class of diseases, is still a distinctly different disorder, and we may ultimately find that in pyrosomal diseases of cattle, we have to deal with a class of disease related to one another in much the same way as the various types of human malaria, formerly classified as one, but which we now know to be caused by infection with the different parasites of the quartian, tertian, and the tropical types of malarial fever. We must therefore, in describing such pyrosomal diseases of cattle, discriminate clearly between Texas fever and Rhodesian fever, because in these two diseases the causal parasites, the symptoms to which they give rise, and the pathological changes in the organs, are different.

Bearing out my opinion that the Rhodesian fever is a specific disease, I may instance another fact considered of considerable importance at the present day in the classification of infectious diseases, and this is that it has been proved through direct experiments by Gray, Robertson, Pitchford and Theiler, that cattle from Natal and the Transvaal, which areas we know to be immune against Texas fever, and even cattle from Texas itself will catch the Rhodesian fever, and die of it. Were the two diseases of exactly the same character, a complete or at least a certain degree of immunity should have been manifested, but this is not so ; therefore they cannot be considered identical, nor is the view that Rhodesian fever is merely a more than usually virulent form of Texas fever a tenable one.

Yet another theory has been propounded, and that is that the Rhodesian fever is not one disease, but a complication of diseases, but in support of this there is no evidence whatever. In the blood of animals examined by us we only found the small parasites characteristic of this disease, and always in such abundance that the course of the disease and the death of the animals could be ascribed to their presence without any hesitation, and there was no necessity to entertain any theory of the existence of any mixed infection.

Origin of the Disease.

The question is now if this apparently new disease has arisen in Rhodesia, or if it was imported from some other place, and to answer this question I must endeavour to trace the history of this outbreak.

At the end of 1900 about 1000 head of cattle for Rhodesia from New South Wales were landed at Beira, and because they could not be forwarded by rail at once they were sent on the veldt for grazing there. They grazed in the neighbourhood of Mr. Martini's farm and mixed with his stock, which were to all appearances in perfect health, and which remained so. Two or three weeks later the disease broke out amongst the Australian cattle which were then sent to Umtali and carried the disease with them.

But how could the Australian cattle become infected ? In New South Wales no such disease is known, and no mortality occurred amongst these animals during their voyage from Australia. There was also no apparent disease at Beira.

The problem would be well-nigh insoluble if there was not one piece of evidence in our possession which I became cognisant of some years back, namely, that the same disease exists on the East African Coast as has now broken out in Rhodesia, and that in German East Africa the disease was carried inland in a similar manner to that in which it may have been brought from Beira to Umtali.

The stock on the Coast of German East Africa are apparently quite healthy and in the best condition, but as soon as other cattle are brought there from clean districts, for instance, from the inner parts of the country, and graze on veldt on which the cattle from the coast have been grazing, these imported animals will get sick and almost all die.

The indications of this disease are the same as those of Rhodesian fever, and in the blood of these infected animals, which I have many times examined, I have always found the same blood parasites which I have again seen at Umtali, Salisbury, and Bulawayo.

Observations of this disease as existing on East Coast made during voyage.

On the voyage out I have had an opportunity of examining three animals which only a few weeks previously arrived at the coast of German East Africa from the interior, and which were showing the first symptoms of the disease, and whose blood contained the characteristic blood parasites present in Rhodesian fever. My assistants also found the same parasites in the blood of several sick animals at Zanzibar. Six years ago at Tanga, I saw an outbreak of exactly the same character as the present Rhodesian one, although of smaller dimensions. In this case a herd which was brought into the infected area at Tanga and which became infected there, carried the disease thence to Mohesha in the interior.

Area which may be considered Infected by this disease.

From inquiry which I made I gathered that this disease has been indigenous for generations back in German East Africa and the neighbouring Islands, and I have good reason for supposing that it also extends still further southwards along the coast, and in all probability it also exists in Beira. In Beira I was informed that some time ago cattle were frequently brought there from German East Africa and Madagascar, and that the latter animals, especially when they came from the south of the Island, soon became sick and died, while the cattle from the East African Coast and the northern districts of Madagascar remained healthy.

To verify these statements, to see if the cattle from German East Africa, and from Beira are immune against Rhodesian fever, which should be the case if my views are correct, I consider it well worth bringing a few cattle from German East Africa and from Beira to Bulawayo, to be tested here as to their immunity.

Probable channel by which disease reached Rhodesia.

In conclusion it seems to me that a very reasonable explanation of the cause of the present Rhodesian outbreak is to assume that the highly susceptible Australian cattle landed at Beira, which belongs, I believe, to the infected coast district, became infected there and carried the disease with them to Rhodesia.

The Transvaal Outbreak.—Identity of Transvaal and Rhodesian Diseases.—Probable route by which disease entered Transvaal.

I am of opinion that there is also good reason for supposing that the infected area extends still further south to Delagoa Bay, as for some time past the Transvaal has been invaded from its south eastern border by a slowly spreading disease infecting cattle, which appears from all accounts to be very much like the Rhodesian fever. Mr. Theiler, Government Veterinary Bacteriologist, Pretoria, whom I asked to send me some blood preparations from infected parts of the Transvaal, most kindly complied with my request, and we have been able to prove that in the preparations from different parts of the Transvaal (from Nelspruit, Herdepoort, and Mooi Plaatz) exactly the same blood parasites are to be found as at present in the blood of animals affected with local Rhodesian fever; therefore there can be no doubt that the same disease exists in the Transvaal as that prevailing in Rhodesia, but when we take into consideration the position of the infected districts of the Transvaal, and the obstacles to communication which have existed and still exist, the view that the disease extended thither from Rhodesia is, I think, quite untenable. What is very likely, however, is that the disease obtained a foothold in the Transvaal in much the same way as it did in Rhodesia, that is by being imported from the coast, in the one instance from Beira, and in the other from Delagoa Bay. In appearance in Rhodesia the disease has conformed to a natural law which it has often followed aforetime. It has been brought inland from the infected coast districts as it has previously been in many other instances, and therefore it appears to me to be more reasonable to call it "African Coast fever," in preference to calling it Rhodesian Fever.

Taking these facts into consideration, it is advisable that those ports on the East African coast which are now used as ports of entrance for the introduction of cattle to the interior, should be carefully examined in order to ascertain whether or no they are infected with "African Coast Fever," and those which are so infected should be closed against cattle, or the entrance of these animals should only be permitted under such conditions that the importation of infection from the coast to the interior is rendered impossible.

The Existence of Immunity.

Another important question which arises in connection with the present epidemic, is whether anything like lasting immunity is produced in such animals as have recovered from an attack of the disease. It is known that immunity against Texas fever exists, but whether there is any lasting immunity to the Rhodesian fever seems doubtful, as in the report of Gray and Robertson they state, "the few animals which have recovered from a first attack in many instances developed a second attack about three months later which we terminated fatally," and we also saw a case in Salisbury which ended in the death of the animal which we were assured had got over the disease some months ago. This does not look as if we could reckon upon immunity, but still I am convinced that such a thing exists because we have had an opportunity of seeing and examining a considerable number of animals which have recovered from the disease, and although they have been grazing for some time on infected veld, they have not sickened again and must therefore be considered immune against natural infection.

A most interesting feature of the examination of these animals was that although they appeared perfectly healthy and did not show the slightest variation in temperature, their blood contained a small number of parasites which can only be demonstrated satisfactorily by the use of a staining reagent (Azur. 11) which like the Romanowsky method of staining for malaria colours the chromatin in the parasites a dark red. By this staining method every single parasite can be identified with certainty, and it is to be hoped that in this manner immune animals can be easily and certainly recognised. An immunity of this description against Rhodesion fever, which is characterised by the presence of a small number of parasites in the blood, resembles very closely that

existing against Texas fever, as here, too, parasites exist in a certain number in the blood of immune animals, as the reaction following inoculation with their blood proves. The existence of such parasites in the blood of an apparently healthy animal may be taken as an indication that such animal is not inconvenienced by their presence, therefore must be immune.

The Relation of Ticks to the Disease.

As we know that in the pyrosomal diseases whereto the Rhodesian fever belongs, ticks play a most prominent part as agents for the dissemination of infection, I have occupied myself thoroughly with this side of the question. For this I have had special facilities, as in my earlier work on the pyrosomal disease at Dar-es-Salam, which I have identified with Rhodesian fever, I reproduced it with infected ticks in the far distant Usambara Mountains and so proved that the ticks are also the intermediary agents in this disease.

Putting on one side a few rare species of ticks, I have found the cattle ticks of Rhodesia to be of the same species which are described commonly as throughout South Africa. They are the following:

Varieties of Tick found in Rhodesia and their probable relation to the disease.

Rhipicephalus decoloratus, rhipicephalus evertsi and hyalomma ægyptium, and to these we must add rhipicephalus sanguineus, which is the most common tick in Rhodesia. In Umtali we found also amblyomma variegatum frequently on cattle, and now and then we found hæmaphysalis leachi, of which the dog is the usual host.

Of real importance amongst these ticks there are only the different species of rhipicephalus, and of these most particularly the rhipicephalus decoloratus or blue tick, because this insect is most closely allied to ticks which in America (rhipicephalus annulatus) and Australia (rhipicephalus australis) carry the Texas fever, and also because it is known to be the tick which disseminates Texas fever in South Africa. For this reason we may suspect that rhipicephalus decoloratus is also the intermediary agent in Rhodesian fever. Up to now there have been no direct experiments made, and there is a possibility that the other two species of rhipicephalus may also act as carriers. Experiments have already begun to decide this question.

Difference between Coast Ticks and Rhodesian Ticks.

With regard to the rhipicephalus decoloratus, it is known that it differs from the American and the Australian species in possessing only six rows of teeth on his sucking apparatus (labium), instead of eight rows common to both the others. Up to now the general opinion was that the area for the rhipicephalus decoloratus on the East African coast extended far to the North; I therefore made a collection of ticks at the various ports of call on my journey down the coast, and found that from Mombassa to Beira, with the exception of the Island of Ibo, everywhere specimens of rhipicephalus were obtained, and amongst these a kind which would appear to a casual observer to resemble the rhipicephalus decoloratus, but which, on more careful examination, were found to have eight rows of teeth, and is therefore more closely related to the American and Australian varieties than the African rhipicephalus decoloratus. This specimen is found all along the East Coast of Africa as far south as Beira, and I suspect it may also exist in Delagoa Bay and beyond. Of the real rhipicephalus decoloratus I have not found a single specimen on the coast, but in Rhodesia, as far as my investigations went, only the rhipicephalus decoloratus with six rows of teeth exists. Nor have I found in Rhodesia any specimens of the eight-rowed coast species. This fact goes to prove that in carrying the disease from Beira to Rhodesia, the Australian cattle only brought to Umtali the parasite which produces the disease, and not the coast tick which carried it, but unfortunately it turned out that there was already in Rhodesia a variety of tick, probably the rhipicephalus decoloratus, quite as capable of acting as a carrier as is the coast rhipicephalus.

Forecast.

Lastly, I come to the question of how the disease will further develop, and in what way we can combat its spread. If nothing could be done against the disease it would, without any doubt whatever, permanently infect every locality in which it breaks out, and in time the whole of Rhodesia will suffer as severely as Umtali, Salisbury and other places have already done.

There will be only 10 to 20 per cent. of the cattle left alive, but these animals will be immune, and will be progenitors of an immune breed which will thrive in Rhodesia as they now do on the coast. The same situation will be developed as now exists in the Southern States of North America, in Queensland, and on the East African Coast, the locally bred cattle will not become visibly sick, they may appear strong and healthy, but the progeny of ticks reared upon such animals will be pathogenic for cattle which come from clean countries. This state of affairs can hardly be considered a satisfactory one. Besides this, there is to be feared that this natural immunising process will progress very slowly and fitfully, and as a result the cattle breeding industry in Rhodesia will not develop materially for many years to come. As this is the alternative, it is absolutely necessary not to let the pest take its own course, but to fight against it by every means in our power. A radical measure would be the destruction of all ticks, but this has been attempted for years in the Texas fever countries, but unfortunately without marked success, because while it is possible with the help of dipping tanks and sprays to destroy most of the ticks on an animal, some remain, as we have noticed, on a few regularly dipped cattle here, and very few ticks will suffice for the production of a large number of young ticks which will ensure further spread of the disease.

Problem of producing Immunity artificially and difficulties involved therein.

Therefore experts in North and South America, as well as in Australia, came to the conclusion that it would be well to protect the animals against the sickness by inoculation. At first these inoculations were not always satisfactory, as sometimes the blood used for inoculation purposes was too weak to protect, or too virulent. It was only when blood could be obtained from such immune animals as gave a sufficiently severe reaction to confer immunity, and when this standard of virulence could be maintained, that satisfactory results were forthcoming. Such a line of action must be adopted to combat Rhodesian fever, and our endeavour must be to find a suitable virus, a matter of no little difficulty on account of the extreme virulence of the Rhodesian fever, and when once the fact is ascertained that natural immunity to this disease actually exists, there is no doubt the line of treatment necessary to produce immunity artificially will be forthcoming sooner or later.

What remains to be done is to discover a standard of virus of such a strength that it will confer a maximum immunity with a minimum of loss from inoculation. Should such a virus be unobtainable by any other means, then an effort must be made to attenuate the virulence of the parasite, for example, by passages through animals other than cattle, or in some other method, by which we may hope to procure the desired protection. That this is possible is shown by the fact that the experiments which I have formerly made in East Africa accidentally placed in my hands a method of immunisation to which

I subjected certain cattle which subsequently resisted a natural infection when exposed thereto.

Of course it is my intention to do my utmost to obtain a suitable stock of vaccine as soon as possible.

I will experiment simultaneously in many different lines in order to save time, and for the purpose many healthy cattle will be required.

The more animals we have for this experimental work the sooner we may hope to bring our labours to a satis factory termination.

(Signed) R. Koch.

Bulawayo, March 26th, 1903.
—*Rhodesian Times.*

THE DISPOSAL OF DEAD ANIMALS FROM A SANITARY POINT OF VIEW.

By Wm. F. Shaw, F.R.C.V.S.

(Paper presented at the Congress of the Sanitary Institute, at Bradford.)

This is a subject which sooner or later must occupy the attention of all sanitary authorities. I do not propose to give a lengthy paper on the various ways of disposing of dead animals, but I wish to lay before you a few facts which may form the basis of a discussion and perhaps help to rouse sanitary authorities as to the importance of this subject.

In my opinion all knackeries or places used for the disposal of dead animals should be municipalised, but so long as there is a commercial value on the carcases of large animals, such as horses and cattle, I doubt if the municipal authorities will trouble much about the matter. It is an unpleasant and disagreeable subject, which some people may think is best left alone whilst knackers will continue to do the work. The sanitary authorities license and issue regulations as to the manner in which knackers' yards should be conducted, and inspectors occasionally visit the premises to see that some of the regulations are carried out; but if the matter is looked at from a strictly sanitary point of view, does any person present know where there is a single knacker's yard which is up-to-date as regards the sanitary arrangements of the premises? I do not know of one which is conducted without causing more or less a nuisance to the immediate neighbourhood. I rather suspect the reason why these premises have been allowed to exist in their present condition is not because some of them carry on business under an old Act of Parliament of George III., but because, should the sanitary authorities place proper restrictions on such premises and see that the regulations are strictly carried out, it would compel the owners to pull down all the old buildings, of which most are composed, and establish them either away from inhabited houses or rebuild them in an up-to-date sanitary condition on the present sites. The capital required for such extensive improvements could not be found by the proprietors of knacker's yards, or if found no interest could be paid on the capital, for there is not the slightest doubt that the knackering trade in large towns, and even country districts, is a declining one. When a question of public health is at stake there ought to be no reason why the municipal authorities could not buy up or compensate the present owners and do this work themselves in a proper manner, either at a profit or even at a loss.

Should the authorities compel the owners of the present knackers' yards to make such structural improvements, and adopt measures by which these premises could be maintained in a sanitary condition, and if the proprietors found that it would be too costly, or that it would not pay them to do so from a commercial point of view, there is at present no reason why the owners could not close their gates and refuse to do business. In a city like London, for instance, where seven of the knackers' yards are owned by one company, who weekly dispose of the carcases of about 500 dead animals, the sanitary authorities would find themselves in a very awkward position if this should take place, and during a hot summer the effect would be very serious, as neither the authorities nor the owners of animals could compel a private firm to resume work if they were disposed not to do so, and the firm could stop the work for an indefinite time, or until they compelled the authorities to remove the restrictions, as no provision has ever been made for this contingency.

The danger to public health of a large number of carcases undergoing putrefaction in a city can be readily understood, more especially as in some carcases, such as horses which may have died from twisted intestines, gangrene of the lungs, blood poisoning, or animals which have been exposed to fire, putrefaction will take place in a few hours if they are not disembowelled very shortly after death. It is now time that all sanitary authorities should recognise this fact, and prepare themselves for such an event. This could be done in either of the three following different ways:—Firstly, by purchasing the existing knackers' yards and reconstructing them; then, when this work has been properly done, they could either be leased to persons who were prepared to carry on the trade under such restrictions as the authorities might impose, or the authorities could work the premises themselves. Secondly, by building fresh premises and undertaking this work in opposition to the existing knacker's yard; this would perhaps be very difficult, as serious objection would be raised by the owners of any land or premises adjoining that which might be selected as the sites. Thirdly, by granting licences for the construction of carcase-receiving depôts, which would be practically horse and cattle mortuaries. In these depôts dead animals could be received and disembowelled; the carcases could then be removed to more convenient premises for the cutting up, boiling, and manufacturing the materials derived from such carcases.

Carcases of horses and cattle have depreciated in value during the last twenty years at least fifty per cent., and it is possible that in the next twenty years these carcases may have no commercial value whatever, except as regards the hides. It must not be thought that persons who carry on knackers' businesses have made large fortunes during the last twenty years because they have purchased the carcases at half the cost of what was paid in former times, for as the carcases have depreciated in value, so have the saleable materials obtained from them also depreciated quite fifty per cent., such as meat, hides, oil, fat, blood, bones, hair and horn. Meat used as cats' and dogs' meat was once sold in large towns such as London at £1 per cwt., and I have seen a receipt where as much as 23s. had been paid per cwt. for meat by cats' meat vendors; it can now be purchased from 10s. to 14s. per cwt. The demand for meat has fallen off, biscuits and meal for dogs' food have become popular; this kind of food is cheaper, more cleanly, and it does not necessitate getting a fresh supply every day. The demand for this class of food is clearly shown by the number of prosperous biscuit factories for the most part exclusively engaged in the manufacture of biscuit and meals for dog feeding. Cats are not fed on horseflesh so much as formerly, as here again times have changed, since the introduction of foreign meat for human consumption. Twenty years ago a family would have to pay 10d. or 1s. per pound for legs of mutton in good condition, but now people can if they wish purchase perfectly sound legs of mutton from sheep in prime condition at frozen meat stores, such as Messrs. Nelson and Sons, at 4½d. per pound; and it is only reasonable to suppose that the householders who could not afford to feed their cats on meat at 1s. per pound do not object now to giving their

cat trimmings of a joint costing less than half the price. The demand for meat as dogs' and cats' meat in large towns not being so great, it has reacted also on the country districts, which formerly used to send their meat to these centres, so that now it cannot be sent for any long distance as it would not pay on account of the carriage.

A few years ago the price of worn out and lame horses ruled high, partly on account of the demand for meat for dogs and cats, and partly because the meat of lame and worn out horses was sent in a salted condition to the continent for human food; but the prohibition of this class of imported meat to the continent has decreased the value of the carcases of such animals by one half. At the present time only live horses in a condition fit to travel and be shipped are exported to meet the demand, but at any time an order might be made prohibiting the importation of horses for human food on the continent, and as 8,000 are shipped from the Port of London yearly, it would cause these horses to be destroyed in some manner in England. At the present time there is no demand for horse-flesh in this country for food for human beings, therefore the carcases of these horses would have to be dealt with at the knackers' yards. The number of carcases of animals passing through knackers' yards throughout England must be considerable, for in London alone, where most of the knackers's yards are amalgamated into one company, they deal with the carcases of about 28,000 horses and cattle during the year, besides a number of smaller animals, such as sheep, goats, and pigs. Hides are worth considerably less than they were years ago owing to large importations from the colonies and foreign countries. Oil and gut, which were once very valuable articles, have depreciated in value owing to the vegetable and mineral oils which have been substituted for animal oil; this oil which was sold as high as £40 per ton can now be purchased at about £23, and it has even been as low as £17. Blood is not worth a third of what it was; formerly it was used considerably for certain trades such as dyers, etc., but other materials have been substituted, and now it is chiefly used for artificial manure. Bones have fallen in value from £6 or £7 per ton to about 50s. Hair and horn are lower in value. If carcases in a sound condition are worth very little and are gradually becoming worth less, what value can be put on the carcases of horses and cattle in a putrid or semi-putrid state? They are at the present time worth nothing.

The removal of carcases after death is another question which needs great consideration, and it should be illegal for any horse or cattle owner to keep the carcase of an animal which has died on his premises longer than is absolutely necessary for its removal. It is this speedy removal which is most necessary to keep knackers' yards free from stenches. Any owner who deliberately or through carelessness allows a carcase to remain in a hot stable or cowshed for perhaps hours and sometimes a day or two should be subject to a heavy penalty, for animals kept without being disembowelled for hours causes putrefaction to set in and the carcases become what is known in the trade as "stinkers," such carcases should be destroyed and it should be illegal to boil them.

When a horse or cattle owner outside a town finds his dead animal to be worthless except for the hide he has the carcase skinned and sometimes causes it be buried. If it is not right to bury a human body without having the death registered, and being buried in a spot approved by the sanitary authorities, it surely cannot be correct to allow a person to bury the carcase of an animal, perhaps in a putrid condition, anywhere he may please on ground he may rent or own.

The death of all animals should be registered and notice should be given to the sanitary authorities as to the disposal of the carcase, and any person found burying an animal without the sanction of the sanitary authorities should be liable for the offence, for who can say if the owner has not buried the carcase without disembowelment near a water course or well which may supply persons with drinking water? And may not many of the obscure outbreaks of enteric fever in rural districts, which have puzzled medical officers of health from time to time, be attributed to this source if the true facts could only be ascertained?

The mode of carrying dead animals on an open knacker's cart is a disgrace to this country. What is a more repulsive sight to a sensitive person or timid child than to see a dead horse or cow exposed in an open cart, with often blood running from the head or nostrils and sometimes even the intestines protruding from the carcase. All dead animals should be conveyed in a properly constructed and enclosed vehicle, passed and approved by the sanitary authorities.

In large towns and cities it is not an uncommon thing for a person, having a dog die, and wishing to save the expense of destruction of the carcase, to either bury it in his own garden, back yard, or deposit it as night in a bye street, or public square. As dogs vary in size from a large St. Bernard to a toy terrier, can it be right or healthy for an animal, perhaps nearly as large as a donkey, to be buried in a suburban or town garden, usually without being disembowelled? I maintain this condition of things should be stopped, and every Borough Council should have a destructor, where such animals might be brought by the owners and destroyed, free of cost, or at a small charge. With reference to the carcases of the smaller animals, such as dogs, cats, etc., which are frequently seen lying about the public streets and bye-ways for days and often weeks, I would suggest that it be one of the duties of the police to notify the sanitary department, whose work it is to keep the roads clean, and such department, on receiving notice from the police, should at once have the carcase removed and destroyed. The authorities have always their remedy against any person who may be found depositing a dead animal in the highway, or even on vacant ground, and if the duty of notification should be placed on the police, the sanitary department can have no excuse whatever for allowing a dead animal to remain and undergo putrefaction exposed to public view.

THE ROYAL VETERINARY COLLEGE OF IRELAND.

On July 10th, at one o'clock, the annual distribution of medals took place at the Royal Veterinary College, Shelborne Road. Sir Christopher Nixon presided.

The PRINCIPAL (Prof. Mettam) offered Sir Christopher Nixon, on behalf of his colleagues, the students, and himself, a hearty welcome on his visit that day. The past session had been one of success. They commenced work in October with 80 professional students on the roll, a number he thought he prophesied to them they might expect at the commencement of their third session. The Governors of the College were to be congratulated on the fact that they had such a good number of students. He thought it showed that the Veterinary College was needed in Ireland. Not only could they claim that they were educating Irishmen, but they had also the pleasure of welcoming others from across the Channel here (applause), showing that they had a nucleus for, he hoped, a far-famed institution. During the past session they had the good fortune to register their first graduate on the Register of the Royal College of Veterinary Surgeons. He referred to their old student, Mr. Craig, of Londonderry (applause.) This being their third session they had not as yet been able to send through all the examinations of

the Royal College a student who entered the Royal Veterinary College of Ireland and had been at no other College, for the course was a four-years-course, but he hoped that by this time next year they would have men preparing for the fourth or final examination. (Applause.) He thought there was a very good opening for veterinary surgeons in the British Empire: there was the inducement of private practice, and the veterinary profession was in the unusual position of having a fewer number of graduates on its Register than last year, or even the year before. Besides the private practice there was Army Veterinary Department, then there was a very good opening in the Civil Veterinary Department in India and the Colleges, and the Corporations, too, were appointing veterinary surgeons to work with the Medical Officer of Health, and a veterinary surgeon had been appointed in Dublin, Edinburgh, Hull, Manchester, London, and other municipalities. (Applause.)

The PRESIDENT then distributed the medals and honours as follows:—

Class A (Junior Anatomy)—Silver medal, A. Hodgins; bronze medal, J. Crowley. Biology—Silver medal, J. Crowley; bronze medal, A. Hodgins; first-class honours, Markham, Prendergast. Chemistry—Silver medal, J. Crowley; bronze medal, A. Hodgins; first-class honours, O'Brien, Gibson, Stirling, Prendergast. Practical Chemistry—Bronze medal, J. Crowley. College exhibition, J. Crowley.

Class B.—Senior Anatomy—Siver medal, T. Flynn; bronze medal, J. K. Campbell; first honours, Clinton. Physiology—Silver medal, J. T. Clinton; bronze medal, W. A. King. Histology—Bronze medal, T. Flynn; first honours, Harrison, King, and Devine. Stable Management—Silver medal, B. Rickerby; bronze medal, J. T. Clinton; first honours, Clibborn, Phibbs.

Class C—Pathology and Bacteriology—Silver medal, R. G. Melville; bronze medal, Jos. Lynch; first honours, Duncan, Hearne, Barlow, White, and Baker. Materia Medica, Therapeutics, and Toxicology—Silver medal, M. Barlow; bronze medal, A. C. Duncan; first honours, Hearne. Veterinary Hygiene—Silver medal, Jos. Lynch; bronze medal, A. Baker; first honours, Barlow.

THE PUBLIC HEALTH CONGRESS.

The Public Health Congress promoted by the Royal Institute of Public Health began at Liverpool on Wednesday, July 16, and carried on its proceedings until the 21st.

The work was divided into the following sections:—The sanitation of congested areas and the rehousing of those dispossessed; preventive medicine and vital statistics; bacteriology and comparative pathology; tropical sanitation; municipal hygiene and sanitary legislation; engineering in its ayplication to sewage disposal, refuse destruction, and the maintenance of highways; child study and school health; port sanitary administration; and domestic sanitation, which was dealt with in a section under the management of ladies.

The Bacteriology and Comparative Pathology section met under the Presidency of Professor BOYCE, F.R.S. In his opening address the President stated that it was fitting that in a city like Liverpool, where a new university had been created, no pains should be spared to make the University not only the best equipped of its kind, but also that its great departments should be so organised that they could be readily used by the City Corporation, by district authorities, by the Chamber of Commerce, and by commercial firms seeking advice. They wanted on their part the advances made in science to be utilised to the full advantage of the community, and in return they required the active support of the public. This interdependence had been fully recognised in Liverpool. The speaker dealt with benefits resulting from the discoveries of Jenner, Pasteur, and Lister, and pointed out the value of a bacteriological department to the health of a great city. He remarked that there existed in addition to the routine checking work a whole field of research in regard to plague, cholera, rabies, purity of water, etc., in which the community was directly interested. In the domain of comparative pathoiogy perhaps more than in the case of human pathology the subject of parasitology had obtained an extensive recognition. In animal disease a wide field for investigation remained to be explored. They were content to lose thousands of animals, and to regard it as inevitable. When "foot-and-mouth disease" was breathed there arose a panic, and all this was due to ignorance. There was no field of research which would repay the student, the farmer, the cattle importer so much as the investigation of animal diseases. (Applause.)

"The milk supply of large towns: production, delivery, quality, purity," was the tittle of a paper read by Mr. J. S. LLOYD, veterinary surgeon, of Sheffield. He remarked that the urban milch cows were housed under fair sanitary conditions and supplied with pure water. The suburban premises left much to be desired, while the sanitary conditions of milk production in the rural districts were in the majority of cases decidedly bad as regarded ventilation, lighting, and cubic area. After dealing with various aspects of the subject, the reader of the paper stated that the conditions of the milk supply of large towns left much to be desired, and that additional measures were required to ensure a supply a good, pure milk at a fair price. The municipal authorities should (1) encourage the urban milk producer, who kept good clean cows, in sanitary cowsheds, fed them well, had a good water supply, clean utensils, and was clean in his person, and supplied fresh milk to his customers; (2) endeavour to get rural local authorities to put in force the Dairies, Cowsheds, and Milkshops Orders, so that the sanitary arrangements of cowsheds and farms in the country should be equal to those in the town; (3) endeavour to make penal the supply of milk from any cow suffering from illness; (4) energetically put in force the Food and drugs Act and other regulations; (5) certify the milk from dairymen and farmers willing to take such measures as would tend to the supply of good milk; and (6) establish municipal milk depôts where poor mothers could obtain the necessary sustenance for their children, and so provide one means of combating the appaling death-rate of infants existing in the poorer parts of many large towns. (Applause).

Dr. FISHER (Garstang) drew attention to the inefficiency of farm buildings, and the unsatisfactory method of the railway conveyance of milk. He urged that an average standard of quality should be adopted. Honest agriculturists should have a certain amount of latitude and sympathy. (Hear, hear.)

Mr. WOLSTENHOLME (Manchester) suggested the establishment of a national service which would define the standard of cubic space, making cooling compulsory, and help to educate the farmer.

Mr. BACKHOUSE (Liverpool) spoke well of the milk produced in this city, and argued that compensation should be given in case of confiscation. (Hear, hear.)

Prof. WILLIAMS (Edinburgh) contended that although milk was not altogether blameless, it was blamed for far more than it ought to be. Co-operation and not friction should be the feeling between the authorities and the milk producers. It was a common thing for milk to be in a perfect condition when it left the dairy, and to be afterwards contaminated by being exposed to organisms. The householder was responsible for a lot of disease through ignorance. Certainly, the children of the poor who had little milk were far more subject to tuberculosis than those who had plenty. In Russia full compensation was given in respect of diseased cows, and there

was no reason why our Government should not act in the same way. (Hear, hear.)

Dr. NASH (Southend) thought that the poor should be educated up to the importance of keeping milk in clean vessels, which in summer should be covered, as flies were a common source of infection.

Colonel Thomas, M.D., Indian Medical Service; Mr. J. King, London; Dr. Richard Lord, London; and Mr. Laithwood, chief veterinary inspector of Cheshire, joined in the discussion; the latter suggesting the institution of a natural veterinary Board of Health.

Mr. J. M'LAUCHLAN YOUNG, lecturer on veterinary hygiene, Aberdeen University, gave a paper on "Bovine Tuberculosis and Public Health." He contended that it had been abundantly proved that human tuberculosis was capable of transmission to bovines, and although it might never be conclusively decided he ventured the opinion that the converse was equally true, viz., that bovine tuberculosis was transmissible to man.

A short discussion followed, the principal speakers being Dr. Coutts, M.O.H., Blackpool; Mr. J. Backhouse, Liverpool; Dr. Leslie Eastes, Dr. Fisher, Mr. Eaton Jones, Liverpool; Mr. Lloyd, Mr. Laithwood, and Mr. King.—*Liverpool Courier.*

R.C.V.S. Exams. in London:—A Correction.

In the list of students who passed their third examination [page 54, last week] instead of H. W. Quinlan, read H. W. ROBINSON.

Educational Weaknesses.

Sir,

Is the enclosed cutting from this day's *Daily Chronicle* any good to you?—Yours faithfully,

July 25th, 1903. E. R. H.

"A correspondent writes to complain that he tried yesterday morning to read one of our paragraphs aloud to his wife—and failed. He wants to know how anyone is to pronounce "veterinary." The answer is that it cannot be pronounced with the accent on the first syllable except by prayer and fasting, and it cannot be pronounced by a foreigner at all. Our inveterate habit of throwing back the accent as far as possible is giving us a plentiful crop of words that can hardly be spoken. We have to call a veterinary surgeon a "vet." thereby throwing up the sponge. And what living man can say in fluent conversation 'temporarily?'"

Curious Spelling of Army Candidates.

In a recent Army examination of candidates from the public schools the inability to spell correctly was lamentably apparent.

The following are some of the errors taken from replies to papers set at the examination:

WOLSELEY.	VETERINARY.	BARRICADE.
Wolsley	Veteranary	Baracade
Wollsey	Veteranery	Barracade
Wolsely	Vetrenary	Baricade
Wolesly	Vetranary	Barrickade
Wolesley	Veterany	Barrackade
Woolsey	Vetinary	Barackade
Wolleselly	Vetternary	

ORDNANCE.	KHAKI.	COMMISSARIAT.
Ordinence	Kahki	Commisareat
Ordonance	Karkhi	Commisariat
Audinense	Kharki	Commisarate
Ordinance	Karkie	Comissariat
	Kakhi	
	Karki	

—*Advocate of India.*

Personal.

LIVESEY-NICHOLLS.—On the 22nd July at St. Peter's (Parish) Church, Brighton, by the Rev. J. James, GEOFFREY HERBERT LIVESEY, M.R.C.V.S., of 15 D'Avigdor Road, Hove, Sussex, and formerly of Stourport, Worc., son of the late William Harrison Livesey, of Liverpool, to CLARE ALICE, Younger daughter of William Howard Nicholls, M.R.C.S., of 13 Waterloo Place, Brighton, and of Rottingdean, Sussex.

DISEASES OF ANIMALS ACTS 1894 & 1896.

SUMMARY OF RETURNS, WEEK ENDING JULY 25, 1903.

Period.	Anthrax.		Foot-and-Mouth Disease.		Glanders (including Farcy)		Rabies.		Swine Fever.	
							Cases Confirmed.			
	Outbreaks	Animals Attacked.	Outbreaks.	Animals Attacked.	Outbreaks.	Animals Attacked.	Dogs.	Other Animals	Outbreaks.	Slaughtered as Diseased or Exposed to Infection
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
Week ended July 25, 1903 ..	6	8	..	..	36	55	..	..	19	104
Corresponding week in 1902 ..	15	24	..	..	29	47	..	..	42	159
Corresponding week in 1901 ..	11	13	..	..	29	57	..	..	55	341
Corresponding week in 1900 ..	10	24	..	..	23	35	..	..	39	212
Total for 30 weeks, 1903	481	754	..	..	831	1358	..	..	979	4,859
Corresponding period in 1902 ..	426	696	1	120	670	1206	12	11	1,071	4,930
Corresponding period in 1901 ..	391	551	12	669	767	1311	1	1	2,440	11,898
Corresponding period in 1900 ..	335	562	9	123	634	1079	..	..	1,370	14,046

NOTE.—The figures for the Current Year are approximate only.

Board of Agriculture, July 28th, 1903.

"RESIDING ABROAD."

Dear Sir,

I see Mr. Dalrymple, in your issue of June 20th, has once again referred to the fact that under the present system many Members of the College residing abroad are practically unable to record their votes for the Council election.

I have already written to you twice on the subject, and I know you sympathise. I also note that the Council does not take any notice of letters written to your paper. Surely nominations could be called for earlier, and a list of the candidates sent out with the voting papers.

Whilst on this subject I should like to draw your attention to a clause in the Regulations for the Bursary Fund which seems hard on men residing abroad. If you will refer to Regulation No. 2, you will see that two months notice of the examination is to be given, and one month's notice of intention to compete is required from the candidate. It is obvious that many men residing abroad cannot comply with these conditions and are consequently debarred.—Yours truly,

G. K. WALKER, Vet.-Capt.

Lahore, India, July 6.

COMMUNICATIONS, BOOKS AND PAPERS RECEIVED.—Capt. G. H. Walker, Messrs. W. H. Dalrymple, E. R. Harding, G. Mayall, A. S. Hodgkins, C. Cunningham. The Doctor Sahib. *The Agric. Jrnl.* (Cape), *The Nottingham Evening News*, *Bodmin Guardian*.

Veterinary Societies—Addresses.

BORDER COUNTIES V.M.S.
Pres: Mr. J. W. Hewson, M.R.C.V.S., Wigton
Hon. Sec. (*pro tem.*): Mr. F. W. Garnett, M.R.C.V.S., Dalegarth, Windermere
Meetings, Second Friday of Feb., June, and October

CENTRAL V.M.S.
Pres. Mr. W. Perryman, M.R.C.V.S., 139 Fentiman-road, S.W.
Hon. Sec: Mr. E. Lionel Stroud, F.R.C.V.S., 29 Spring-st., Hyde Park, W.
Meetings, First Thursday in each month, except August and September, 10 Red Lion Square, Holborn, at 7 p.m.

CENTRAL V.A. OF IRELAND.
Pres. Mr. M. J. Cleary, M.R.C.V.S., Kilpatrick, Mullingar
Hon. Sec: Mr. J. J. Vahey, M.R.C.V.S., Balliurobe
Treas: Mr. J. F. Healey, M.R.C.V.S., Midleton

EASTERN COUNTIES V.M.A.
Pres: Mr. Fred. Morton Wallis, M.R.C.V.S., Halstead, Essex
Hon. Sec.: Mr. H. P. Standley, M.R.C.V.S. Wymondham
Meetings, Second Tuesday, Feb. and July

GLASGOW V.M.S.
Pres. Principal McCall.
Hon. Sec. Mr. Walter Gardner

VET. MED. ASSN. OF IRELAND.
Pres: Mr. Chas. Allen, F.R.C.V.S., 35 North Frederick st., Dublin
Hon. Sec. Mr. J. McKenny, M.R.C.V.S. 116 Stephens-green-west, Dublin

LANCASHIRE V.M.A.
Pres: Mr. R. Hughes, F.R.C.V.S., Oswestry
Hon. Sec.: Mr. G. H. Locke, M.R.C.V.S. Grosvenor-street, Manchester
Meetings, 1st Thursday in April, June, Sept., & Dec.

LINCOLNSHIRE V.M.S.
Pres. Mr. H. Caulton Reeks, F.R.C.V.S., Spalding
Hon. Sec: Mr. T. Turner, M.R.C.V.S., Sleaford
Treas: Mr. E. C. Russell, M.R.C.V.S., Grantham
Meetings, Second Thursday, Feb., June and October

MIDLAND COUNTIES V.M.A.
Pres: Mr. Frank H. Gibbing, F.R.C.V.S., Nottingham
Hon. Sec: Mr. H. J. Dawes, F.R.C.V.S., Camden House, High-st., West Bromwich
Meetings, Second Tuesday, Wednesday, Thursday, and Friday alternately in Feb., May, Aug. and Nov.

NATIONAL VET. ASSOCIATION.
Pres: Mr. Frank W. Garnett, M.R.C.V.S., Windermere
Sec: Mr. William Hunting, F.R.C.V.S.
Treas: Mr. F. W. Wragg, F.R.C.V.S., Whitechapel, London.

NATIONAL VETERINARY BENEVOLENT & MUTUAL DEFENCE SOCIETY.
Pres: Mr. W. A. Taylor, F.R.C.V.S., Tower-st, Manchester
Treas: Mr. E. Faulkner, F.R.C.V.S., Manchester
Hon. Sec: Mr. Sam. Locke, M.R.C.V.S. Grosvenor Street, Oxford-st., Manchester

NEW SOUTH WALES V.M.A.
Pres: Mr. John Stewart, H. AND A.S.
Vice: Mr. John Pottie, H. and A.S.
Hon. Sec. & Treas: Mr. J. D. Stewart, M.R.C.V.S.

NORTH OF ENGLAND V.M.A.
Pres: Mr. G. Craik, M.R.C.V.S., Alnwick
Hon. Sec: Mr. E. R. Gibson, M.R.C.V.S. 25 Marlborough-street, Seaham Harbour
Meetings, Third Friday, Feb., May, Aug. and Nov.

NORTH OF SCOTLAND V.M.S.
Pres: Mr. J. McLauchlan Young, F.R.C.V.S., Univ. Aberdeen
Sec. & Treas: Mr. Clement Baxter, M.R.C.V.S., Elgin

NORTH WALES V.M.A.
Pres: Mr. H. O. Richard, M.R.C.V.S., Corwen
Hon. Sec. O. Trevor Williams, M.R.C.V.S., Llangefni
Meetings, First Tuesday, March and September

ONTARIO V.A.
Pres: Mr. J. H. Tennent, V.S., London, Ontario
Sec: & *Treas*: Mr. C. H. Sweetapple, V.S., Toronto, Ontario

ROYAL COUNTIES V.M.A.
Pres: Mr. James East, M.R.C.V.S., Aylesbury
Hon. Sec: Mr. Percy J. Simpson, M.R.C.V.S., Kendrick House, Maidenhead
Meetings, Last Friday, Feb., June and Nov.

ROYAL SCOTTISH V.S.
Pres: Mr. Reid, M.R.C.V.S., Auchtermuchty.
Hon. Sec: Mr. W. D. Fairbairn, M.R.C.V.S., Cupar, Fifeshire

ROYAL VETERINARY COLLEGE M.A.
Pres: Prof. Woodruff
Hon. Sec: Mr. W. H. Chase, M.R.C.V.S.
Assist. H.S. Mr. Guy Sutton

SCOTTISH METROPOLITAN V.M.S.
Pres: Mr. John Connochie, M.R.C.V.S., Aytoun
Hon. Sec: Mr. John Aitken, Junr., M.R.C.V.S., Dalkeith

SOUTH DURHAM AND NORTH YORKSHIRE V.M.A.
Pres.: Mr. E. H. Pratt, M.R.C.V.S., Northallerton
Hon. Sec: Mr. W. Awde, F.R.C.V.S., Stockton-on-Tees.
Meetings, First Friday, Mar., June, Sept. and Dec.

SOUTHERN COUNTIES V.M.S.
Pres: Mr. C. Pack, M.R.C.V.S, Lymington
Hon. Sec: Mr. F. Spencer, M.R.C.V.S., Claremont House, Basingstoke
Hon. Treas: Mr. E. W. Baker, M.R.C.V.S., Wimborne
Meetings, Last Thursday, Mar., June and Sept.

TRANSVAAL V.M.A.
Pres: Capt. Irvine Smith, South African Constabulary
Hon. Sec: Mr. Kirby Pilkington, M.R.C.V.S., Johannesburg

SOUTH WALES AND MONMOUTHSHIRE V.M.A.
Pres: Mr. E. Sayer, M.R.C.V.S., Newport, Mon.
Hon Sec. Mr. D. G. Davies, M.R.C.V.S., High-st, Swansea
Treas. Mr. E. Sayer, M.R.C.V.S., Newport, Mon.
Meetings First Thursday in March, and Autumn.

WESTERN COUNTIES V.M.A.
Pres: Mr. W. Ascott, M.R.C.V.S., Bideford
Hon. Sec. & Treas: Mr. P. G. Bond, M.R.C.V.S., Plymouth
Meetings, Third Thursday, March, July and November

WEST OF SCOTLAND V.M.A.
Pres: Dr. James McIntosh McCall, Vety. Coll. Glasgow
Hon. Sec: & *Treas*: Mr. J. Bishop, M.R.C.V.S., 754 Garscube Road, Glasgow

YORKSHIRE V.M.A
Pres: Mr. A. C. Thompson, M.R.C.V.S., Doncaster
Treas: Mr. J. E. Scriven, M.R.C.V.S., Tadcaster
Hon. Sec; Mr. H. G. Bowes, M.R.C.V.S., 6 De Grey-ter. Leeds
Meetings, Last Friday in Jan., April, and October, and a Thursday in July.